	(OVPE)							
PTO/SB/	08A 2 2007	€ \-		Complete if Known				
	1	E)	DMATION	Application Number	10/054,629			
	Sheet 1 of 1	E	Filing Date	January 22, 2002				
S		PLICANT	Confirmation Number	5778				
				First Named Inventor	Chang Bum Kim, et al.			
				Group Art Unit	1765 1775			
				Examiner Name	S. STEIN			
Shoot	1	of	1	Attorney Docket No.	MEMC 01-0151 (2960.1)			
Sheet	<u> </u>	<u> </u>	<u> </u>					

			U.	S. PATENT	DOCUMENTS		
			U.S. Patent Doci	ument	 1	D. CD Nighting of C	it and
Examiner Initials*	Cite No.'		Number	Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	
	<u>.l.,</u>	<u>.l.,</u>	FOR	EIGN PATE	ENT DOCUMENTS		1
		F	oreign Patent Do	cument		Data of Dublication of	
Examiner Initials*	Cite No.¹	Office	Number ⁴	Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T6
535	145	JP	11043396		Ohashi Wataru, et al.	02-16-1999	Α
		OTH	IER ART - N	ON PATEN	T LITERATURE DOCUMEN	ITS	1
Examiner Initials*	Cite No.1	Includ	/haal magaz	ing journal seri	AL LETTERS), title of the article (wher ial, symposium, catalog, etc.) date, pa ther, city and/or country where publish	age(3), volumo iocco	☐ T _e
57 S	146	Interna	itional Search Re	port, PCT/US 0	2/01782 dated September 20, 2002	DECEIVED	-

OCT 2 4 2002 TC 1700

Examiner Signature Stand Slam: Date Considered 3/7/2004

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST. 3) ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached or place an "A" here if English language abstract is attached.

PTO/SB/08A	Comple	te if Known
	Application Number	10,054,629
INFORMATION DISCLOSURE	Filing Date	January 22, 2002
STATEMENT BY APPLICANT	Confirmation Number	5778
(use es many sheets as necessary)	First Named Inventor	Chang Bum Kim
▶ ∖	Group Art Unit	1 765- 1775
MAY 2 2 2002	Examiner Name	Unknown STEIN
Sheet 1 of 11	Attorney Docket No.	MEMC 01-0151(2960.1)

		U.S.	PATENT	DOCUMENTS	
		U.S. Patent Docume	ent		
Examiner Initials*	Cite No.¹	Number	Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
555	1	3,997,368		Petroff et al.	12/14/1976
575	2	4,314,595		Yamamoto et al.	02/09/1982
375	3	4,350,560		Helgeland et al.	09/21/1982
555	4	4,981,549		Yamashita et al.	01/01/1991
555	5	5,264,189		Yamashita et al.	11/23/1993
535	6	5,316,742		Tomioka et al.	05/31/1994
555	7	5,441,014	1	Tomioka et al.	08/15/1995
555	8	5,474,020		Bell et al.	12/12/1995
222	9	5,485,803		Habu, R.	01/23/1996
227	10	5,487,354		von Ammon et al.	01/30/1996
535	11	5,494,849		lyer et al.	02/27/1996
222	12	5,502,010		Nadahara, S. et al.	03/26/1996
555	13	5,567,399		von Ammon et al.	10/22/1996
515	14	5,593,494		Falster	01/14/1997
227	15	5,667,584		Takano et al.	09/16/1997

		T	
Examiner	11 , 0,	Date	7/2/200
Signature	Stal Sta	Considered	3/7/2004
- 5			

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ¹Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

PTO/SB/08	RA .	PE	9		Comple	te if K	nown	
10/05/00	<i>57</i>	MAY 2 2 200	2 3		Application Number	10,	10,054,629	
INF	ORMA	NON DIS	SEOSURE	- F	iling Date	Jar	nuary 22, 2002	
STA	ATEME	NTBY	PLICANT	-	Confirmation Number		78	
(use a	ıs manı	y sheets a	s necessary)	-	First Named Inventor	Ch	ang Bum Kim	
V	•	•		<u> </u> -	Group Art Unit	-+-	65 17 <i>75</i>	
				<u> </u>	Examiner Name		KAOWIT STEIN	
			1				EMC 01-0151(2960.1)	
Sheet	2	of	11	/	Attorney Docket No.	IVIE	ENIC 01-0131(2900.1)	
222	16	5,704,973		T	Sakurada et al.	.,	01/06/1998	
555	17	5,728,211			Takano et al.		03/17/1998	
217	18	5,789,309			Hellwig		08/04/1998	
	19	5,846,322		 -	Schulmann et al.		12/08/1998	
<u>227</u> 227	20	5,919,302			Falster et al.		07/06/1999	
	21	5,935,320			Graef et al.		08/10/1999	
<u> 515</u> 555	22	5,942,032			Kim et al.		08/24/1999	
	23	5,954,873			Hourai et al.	09/21/1999	09/21/1999	
<u> </u>	24	5,958,133	<u></u>	_	Boulaev et al.		09/28/1999	
227 	25	5,968,262			Saishouji et al.		10/19/1999	
227 227	26	5,968,264			lida et al.		10/19/1999	
<u> </u>	27	5,994,761	· · · · · · · · · · · · · · · · · · ·		Falster et al.		11/30/1999	
53S	28	6,045,610			Park et al.		04/04/2000	
<u> </u>	29	6,048,395			lida et al.		04/11/2000	
333	30	6,053,974			Luter et al.		04/25/2000	
225	31	6,066,366			Berenbaum et al.		05/23/2000	
-55 S	32	6,093,913		1	Schrenker et al.		07/25/2000	
<u> </u>	33	6,120,599			lida et al.		09/19/2000	
252	34	6,153,008			von Ammon et al.		11/28/2000	
535	35	6,197,111			Ferry et al.		03/06/2001	
Examiner					Date	<u>, /</u>	kooy	

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ³Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁵Applicant is to place a check mark here if English language Translation is attached.

			PE							
PTO/SB/0	08A			C) 1 4 .			Complete	e if I	Known	
;		·	2 2 2	يَنَ -		Α	pplication Number	10	0,054,629	
INF	ORMA	THON	DISC	LOSURE PLICANT		Fi	iling Date	Ja	nuary 22, 2002	
SI	AIEM	ENI BY	F'AP	PLICANT	Confirmation Number 5			57	78	_
(use	as man	y shee	ts as	necessary)	,	Fi	irst Named Inventor	Cr	nang Bum Kim	
						G	roup Art Unit	-	65 17フ <i>S</i>	
							xaminer Name	 	KNOWN STEIN	,
Sheet	3		of	11					EMC 01-0151(2960	1)
Chock		l					Morney Bocket 140.	IVIL	-INC 01-0131(2900	. 1)
555	36	6,228,1	164				von Ammon et al.	05/08/2001		
275	37	6,236,104					Falster	05/22/2001		
252	38	6,245,430					Hourai et al.		06/12/2001	
222	39	6,254,6	6,254,672				Falster et al.		07/03/2001	
575	40	6,312,5	16				Falster et al.		11/06/2001	
222	41	6,336,9	68				Falster et al. 01/08/2002			
				FOREIG	SN PA	TE	NT DOCUMENTS			
		F	Foreign Patent Document							
Examiner Initials*	Cite No.1	Office	Nun	nber⁴	Kind Code ² (if knowr		Name of Patentee or Applican Cited Document	t of	Date of Publication of Cited Document MM-DD-YYYY	Le
222	42	EP	0 50	3 816	B1		Shin-Etsu Handotai Company I	Ltd.	09/16/1992	
८४८	43	EP	0 50)4 837	A2		Shin-Etsu Handotai Company I	Ltd.	09/23/1992	
<u>535</u>	44	EP	0 53	6 958	A1		Shin-Etsu Handotai Company I	Ltd.	04/14/1993	
252	45	EP	0 90	9 840			Shinetsu Handota KK		04/21/1999	
273	46	EP	EP 0 962 556		A1		Shin-Etsu Handotai Company I	Ltd.	12/08/1999	
525	47	EP	0 96	2 557	A1		Shin-Etsu Handotai Company I	_td.	12/08/1999	
222	48	EP	0 99	0 718			Sumitomo Metal Ind. Ltd.		05/14/2000	
255	49	JP		5391 stract only)			Yamashita Ichiro, et al.	06/07/1989		

Examiner Signature	State	Sta	Date Considered	3	/7	2004
-----------------------	-------	-----	--------------------	---	----	------

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). *For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. *Applicant is to place a check mark here if English language Translation is attached.

			PE	\						
PTO/SB/0	08A			AC. 14	_	Complete if Known				
		MAY	2 2 20	الا يِخْ		Application Number	10,	054,629		
INI	FORMA	NOTE	DISC	LOSURE LICANT		Filing Date	Jar	nuary 22, 2002		
ST	TATEM	ENT'8	YAP	PLICANT		Confirmation Number	577	78		
(use	as mar	ny she	ets as	necessary)		First Named Inventor	Chang Bum Kim			
						Group Art Unit	1765 1775			
						Examiner Name	LInknown STEIN			
Sheet	4		of	11		Attorney Docket No.	MEMC 01-0151(2960.1)			
535	50	JP	2-1	80789		Kawasaki Steel Corp.		07/13/1990	X	
222	51	JP	2-2	67195		Nippon Steel Corp.		10/31/1990	Х	
575	52	JP	1	3-93700 stract only)		Nippon Steel Corp.		04/18/1991		
222	53	JP	4-0	42893		Nippon Steel Corp.	02/13/1992		х	
575	54	JP	1	08682 stract only)		Fuji Electric Co., Ltd.		04/09/1992		

222	53	JP	4-042893		Nippon Steel Corp.	02/13/1992	×
575	54	JP	4-108682 (abstract only)		Fuji Electric Co., Ltd.	04/09/1992	
\$75	55	JP	2528309	B2	Seito Ito, et al.	08/28/1996	X
535	56	JP	8-330316 (Pub. Hei 07-158458)		Sumitomo Sitix Corp.	12/13/1996	×
277	57	JP	HO 8-268794		Sumitomo Sitix Corp.	10/15/1996	X
222	58	JP	HO 9-202690 (abstract only)		Shin-Etsu Semiconductor K.K.	08/05/1997	
275	59	JP	11-157995	Α	Sumitomo Sitix Corp.	06/15/1999	X
527	60	JP	11-180800	Α	Shin-Etsu Handotai Company Ltd.	07/06/1999	X
222	61	JP	11-189495	Α	Sumitomo Metal Ind. Ltd.	07/13/1999	X
525	62	JP	11-199386	Α	Shin-Etsu Handotai Company Ltd.	07/27/1999	Х
SIS	63	JP	11-199387	Α	Shin-Etsu Handotai Company Ltd.	07/27/1999	х
SIS	64	PCT	WO 97/26393 (abstract only)		Shin-Etsu Handotai Co., Ltd.	07/24/1997	
275	65	PCT	WO 98/45507		MEMC Electronic Materials Inc.	10/15/1998	
575	66	PCT	WO 98/45508		MEMC Electronic Materials Inc.	10/15/1998	

Examiner Signature	Stah	Steri	Date Considered	3/7/2004

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached

PTO/SB/0)8A · /			C)1,			C	omplete	if Known		
	!		2 2 20			Ar	oplication Numb	er	10,054,62	 29	
INF	ORMA	TON!	DISC	HOSURE		Fil	ing Date		January 2	2, 2002	
ST	ATEME	NT B	MAP	PLICANT		C	onfirmation Num	nber	5778		
(use a	as man	y shee	ts as	necessary)		Fi	rst Named Inve	ntor	Chang Bu	ım Kim	
							roup Art Unit		1765 17		
						<u> </u>	<u>-</u>				
		 -				_	kaminer Name		Unknown		
Sheet	heet 5 of 1		11_		At	torney Docket N	No.	MEMC 01	1-0151(2960).1)	
535	67	РСТ	Two	98/45510			MEMC Electronic M	laterials Inc.	10/15/1	998	Τ
225	68	PCT	WO 00/14776				MEMC Electronic M	faterials Inc.	03/16/2	000	1
228	69	PCT	wc	WO 00/22196		MEMC Electronic Materials Inc.		04/20/2000			
228	70	РСТ	wc	WO 00/22198			MEMC Electronic Materials		04/20/2000		
SSS	71	PCT	wc	01/21861	A1		MEMC Electronic Materials		03/29/2	03/29/2001	
535	72	PCT	wc	01/21865	A1		MEMC Electronic Materials		03/29/2	:001	
571	73	UK	GB	2 137 524	А		Hitachi Ltd. (Japan)		10/10/1984		
223	74	uĸ	GB	2 182 262	Α		Sony Corp.		05/13/1987		
		OT	HER	ART - NON	PATI	ENT	LITERATURE	E DOCUM	IENTS		
Examiner Initials*	Cite No.	Incli (book,	ude nan magaz	ne of the author (i	n CAPI l, sympo	sium	LETTERS), title of the , catalog, etc.) date, pag or country where publi	ge(s), volume-	appropriate), t issue number(s	itle of the item s), publisher, city	, Т
7.12	75	ABE, 147	T., et a	I., "Swirl Defect	s in Flo	at-Zo	oned Silicon Crystals	," Physics., V	/ol. 116B, (19	85), pp. 139-	
SIS	76	ABE, Techr	T., et a lology/	il., "The Charact 1985, (Electroch	teristics nem. So	of N	litrogen in Silicon Cry ennington, 1985), Pr	ystals," VLSI oceedings Vo	Science and ol. 85-5, (198	5), pp. 543-551	
225	77	Proce	edings	al., "Behavior of s of the Sixth Into 1990), pp. 105-11	ernatior	efec nal S	ts in FZ Silicon Cryst ymposium on Silicon	als," Semico Materials Sc	nductor Silico cience and Te	n 1990, ∌chnology,	
525	78			al., "Dynamic Be Proc., Vol. 262,			rinsic Point Defects i 3-13	in FZ and CZ	Silicon Cryst	als," Mat. Res.	
222	79	Gradi	ents M	e Formation Me easured by The pp. 16-29	chanisi	n of ples	Grown-In Defects in Near Growth Interfa	CZ Silicon C ces," Materia	rystals Based Ils Science Ei	I on Thermal ngineering, Vol.	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Signature

Considered

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁵Applicant is to place a check mark here if English language Translation is attached

		NP.	G			
PTO/SB/			7	Complete if Known		
	\ MA	AY 2 2	7002 Ž	Application Number	10,054,629	
IN	FORMATION	DISC	LOSURE	Filing Date	January 22, 2002	
INFORMATION DISCLASURE STATEMENT BY APPLICANT				Confirmation Number	5778	
(use	as many shee	ets as	necessary)	First Named Inventor	Chang Bum Kim	
				Group Art Unit	1765 177 S	
				Examiner Name	Unknown	
Sheet	6	of	11	Attorney Docket No.	MEMC 01-0151(2960.1)	

227	80	BORIONETTI, G., et al., "Investigation of Low Denisty Defects in Czochralski Silicon Crystals: Their Detectability, Formation Kinetics and Influence on Gate Oxide Intergrity," Electrochemical Society Proceedings, Vol. 96-13, pp. 160-169
545	81	DE KOCK, A.J.R., "Microdefects in Swirl-Free Silicon Crystals," pp. 83-94 (source unknown) (date unknown)
535	82	DE KOCK, A.J.R.,"The Elimination of Vacancy-Cluster Formation in Dislocation -Free Silicon Crystals," J. of the Electrochem. Soc.: SOLID-STATE SCIENCE AND TECHNOLOGY, Vol. 118, No. 11, (Nov. 1971), pp.1851-1856
227	83	DE KOCK, A.J.R., et al., "Effect of Growth Parameters on Formation and Elimination of Vacancy Clusters in Dislocation-Free Silicon Crystals," Journal of Crystal Growth, Vol. 22 (1974), pp. 311-320
575	84	DE KOCK, A.J.R., "Point Defect Condensation in Dislocation-Free Silicon Crystals", Semiconductor Silicon, 1977, pp. 508-520.
SIS	85	DE KOCK, A.J.R, et al., "The Effect of Doping on the Formation of Swirl Defects in Dislocation-Free Czochralski-Grown Silicon Crystals," Journal of Crystal Growth, Vol. 49, (1980) pp. 718-734
SIS	86	DORNBERGER, E., et al., "The Impact of Dwell Time Above 900°C During Crystal Growth on the Gate Oxide Integrity of Silicon Wafers," Electrochemical Society Proceedings, Vol. 96, No. 13, pp. 140-151
228	87	DORNBERGER, E., et al., "The Dependence of Ring Like Distributed Stacking Faults on the Axial Temperature Gradient of Growing Czochralski Silicon Crystals," Electrochemical Society Proceedings, Volume 95-4, (5/1995) pp. 294-305
225	88	DORNBERGER, E., et al., "Simulation of Grown-In Voids in Czochralski Silicon Crystals," Electrochemical Society Proceedings, Vol. 97-22, pp. 40-49
227	89	DORNBERGER, E., et al., "Simulation of Non-Uniform Grown-In Void Distributions in Czochralski Silicon Crystals," Electrochemical Society Proceedings, Vol. 98, Vol. 1, pp. 490-503
227	90	DORNBERGER, E., et al., "Defects in As-Grown Silicon and Their Evolution During Heat Treatments," Materials Science Forum, 1997, Vols. 258-263, pp. 341-346.

			· · · · · · · · · · · · · · · · · · ·
Examiner Signature	Stale Ste.	Date Considered	3/7/2004

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

PTO/SB		P F	4C/1	Complete if Known		
		2 2 200	Ο:	Application Number	10,054,629	
INFORMATION DISCLOSURE STATEMENT TOTAL PLICANT				Filing Date	January 22, 2002	
				Confirmation Number	5778	
(use	e as many shee	ets as	necessary)	First Named Inventor	Chang Bum Kim	
				Group Art Unit	1765 1775	
				Examiner Name	Unknown	
Sheet	7	of	11	Attorney Docket No.	MEMC 01-0151(2960.1)	

222	91	EIDENZON, A.M., et al., "Classification of Grown-In Microdefects in Czochralski-Grown Silicon Crystals," Inoranic Materials, Vol. 31(4), 1994, pp. 401-409
535	92	EIDENZON, A.M., et al., "Defect-Free Silicon Crystals Grown By The Czochralski Technique," Inorganic Materials, Vol. 33, No. 3, (1997) pp. 219-225.
535	93	EIDENZON, A.M., et al., "Influence Of Growth Rate On Swirl Defects In Large Dislocation-Free Crystals Of Silicon Grown By The Czochralski Method," Sov. Phys. Crystallogr.; Vol. 30, No. 5 (1985) pp. 576-580.
272	94	FASLTER, R., et al., "Intrinsic Point-Defects and Reactions in the Growth of Large Silicon Crystals," Electrochemical Society Proceedings, Vol. 98-1, pp. 468-489
272	95	FALSTER, R., et al., "Intrinsic Point Defects and Their Control in Silicon Crystal Growth and Wafer Processing," Vol. 25(6), (2000), pp. 28-32
227	96	FALSTER, R., et al., "On the Properties of the Intrinsic Point Defects in Silicon: A Perspective from Crystal Growth and Wafer Processing," Vol. 222(1), (2000), pp. 219-244
227	97	FOLL, H., et al. "The Formation of Swirl Defects in Silicon by Agglomeration of Self-Interstitials," Journal of Crystal Growth, 1977, pp. 90-1087, Vol. 40, North-Holland Publishing Company
227	98	HARADA, H., et al., "Oxygen Precipitation Enhanced with Vacancies in Silicon, pp. 76-85
212	99	HOURAI, M., et al., "Nature and Generation of Grown-In Defects in Czochralski Silicon Crystals," Electrochemical Society Proceedings, Vol, 98-1, pp. 453-467
5 <u>T</u> 5	100	HOURAI, M., et al., "Improvement of Gate Oxide Integrity Characteristics of CZ-Grown Silicon Crystals," Progress in Semiconductor Fabrication presented by: Semiconductor Equipment and Materials International, Semicon/Europa 93, March 30-April 1, 1993, Geneva, Switzerland
277	101	HOURAI, M., et al. "Growth Parameters Determining the Type of Grown-In Defects in Czockralski Silicon Crystals," Materials Science Forum, Vols. 196-201 (1995) pp. 1713-1718
217	102	HOURAI, M., et al., "Formation Behavior of Infrared Light Scattering Defects in Silicon During Czochralski Crystal Growth," J. Electrochem. Soc., Vol. 142(9), (1995), 3193-3201

1	Examiner	St. 1- St	Date	3/7/2004	7
	Signature	July san.	Considered	1 7 7 2009	╝

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

^{&#}x27;Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

PTO/SB		1 P &	*ij	Complete if Known			
	√ MA	y 2 2	2002 🚉	Application Number	10,054,629		
IN C	IFORMATION TATEMENT &	DISC	LOSURE	Filing Date	January 22, 2002		
	IAIEMENI	reast.	HEICAN I	Confirmation Number	5778		
(use	e as many shee	ets as	necessary)	First Named Inventor	Chang Bum Kim		
				Group Art Unit	1765 1775		
				Examiner Name	Unknown		
Sheet	8	of	11	Attorney Docket No.	MEMC 01-0151(2960.1)		

535	103	KISSINGER, G., et al. "A Method for Studying the Grown-In Defect Density Spectra in Czochralski Silicon Wafers," Journal of Electrochemical Society, Vol. 144, No. 4, (1997) pp. 1447-1456	
222	104	KITANO, et al., "Indentification of Vacancy Clusters in FZ-SI Crystals," Phys. Stat. Sol, Vol. 127(a), (1991), 341-347	
222	105	LEMKE, H., et al., "Analytical Approximations for the Distributions of Intrinsic Point Defects in Grown Silicon Crystals," Phys. Stat. Sol. (a) Vol. 176 (1999), pp. 843-865	
Szs	106	NAKAMURA, K., et al., "Formation Process of Grown-In Defects in Czochralski Grown Silicon Crystals," Journal of Crystal Growth, Vol. 180, (1997) pp. 61-72	
STS	107	PARK, J.G., et al., "Effect of Crystal Defects on Device Characteristics", <i>Proceedings of the Symposium on</i> Crystalline Defects and Contamination: Their Impact And Control In Device Manufacturing II, Proceed. Vol. 97-22 (1997), pp.173-195	
522	108	PUZANOV, N.I., et al., "Influence of Transitional Crystallization Regimes on Microdefects in Silicon," USSR Academy of Sciences Newsletter, Vol. 22, No. 8 (1986), pp.1237-1242	х
<i>5</i> 55	109	PUZANOV, N.I.,et al., "Relaxation In A System Of Point Defects In A Growing Dislocation-Free Crystal Of Silicon," Sov. Phys. Crystallogr., Vol. 31, No. 2, (1986) pp. 219-222.	
272	110	PUZANOV, N.I., et al., "Microdefects in Silicon Grown by the Czochralski Method with a Vertical Magnetic Field Acting on the Melt," Sov. Phys. Crystallogr. 35(1), (1990), pp. 102-105	
522	111	PUZANOV, N.I., et al., "Influence of Growth Conditions on the Formation of Microdefects in Dislocation-Free Silicon," Sov. Phsys. Crystallogr., Vol. 34(2), (1989) pp. 273-278	
222	112	PUZANOV, N.I., et al., "The effect of thermal history during crystal growth on oxygen precipitation in Czochralski-grown silicon," Semicond. Sci. Technol., Vol. 7, (1992), pp. 406-413	
227	113	PUZANOV, N.I., et al., "Formation of the bands of anomalous oxygen precipitation in Czochralski- grown Si crystals," Journal of Crystal Growth vol. 137, (1994), pp. 642-652	
دری	114	PUZANOV, N.I., et al., "Modeling Point-Defect Distribution in Dislocation-Free Si Crystals Grown from the Melt," Inorganic Materials, Vo. 32(1), (1996), pp. 1-9	

Examiner Signature	Stot .	Date Considered	3/7/2004
-----------------------	--------	-----------------	----------

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

^{&#}x27;Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

PTO/SB		PECA		Complete if Known		
	1 _	2 2 200	ی	Application Number	10,054,629	
INFORMATION DISCLOSURE STATEMENT BANAPPLICANT				Filing Date	January 22, 2002	
				Confirmation Number	5778	
(use	e as many shee	ets as	necessary)	First Named Inventor	Chang Bum Kim	
				Group Art Unit	1765	
				Examiner Name	Unknown	
Sheet	9	of	11	Attorney Docket No.	MEMC 01-0151(2960.1)	

	·		$\overline{}$
222	115	PUZANOV, N.I., et al., "The Role of Intrinsic Point Defects in the Formation of Oxygen Precipitation Centers in Dislocation-Free Silicon," Crystallography Reports, Vol. 41, No. 1, (1996), pp. 134-141	
222	116	PUZANOV, N.I., et al., "Cultivation, Morphology and Structural Integrity of Dislocation-Free Silicon Tetracrystals," Inorganic Materials, Vol. 32, No. 8 (1996), pp. 903-912	х
523	117	PUZANOV, N.I., et al., "Harmful Microdefects in the Seed-End Portion of Large-Diameter Silicon Ingots," Inorganic Materials, Vol. 33, No. 8, (1997) pp. 765-769	
227	118	PUZANOV, N.I., et al., "Modelling microdefect distribution in dislocation-free Si crystals grown from the melt," Journal of Crystal Growth, 178, (1997), pp. 468-478	
STS	119	PUZANOV, N.I., et al., "Role of Vacancies in the Nucleation of Ringlike-patterned Oxidation-induced Stacking Faults in Melt-grown Silicon Crystals," Inorganic Materials, Vol. 34-4, (1998) pp. 307-314	
212	120	ROKSNOER, P.J., "Effect of Low Cooling Rates on Swirls and Striations in Dislocation-Free Silicon Crystals," Vol. 35, (1976), pp. 245-248	
222	121	ROKSNOER, P.J., "Microdefects in a Non-Striated Distribution in Floating-Zone Silicon Crystals," Journal of Crystal Growth, Vol. 53 (1981), pp. 563-573	
2.25	122	ROKSNOER, P.J., "The Mechanism of Formation of Microdefects in Silicon," Journal of Crystal Growth, Vol. 68 (1984), pp. 596-612	
727	123	RYUTA, J, et al., "Crystal-Originated Singularities on Si Wafer Surface after SC1 Cleaning," Japanese Journal of Applied Physics, Vol. 29(11) (1990), pp. L1947-L1949	
227	124	SEIDEL, T.E., "Silicon Wafers for the 1990's," Journal of Crystal Growth, Vol. 85, (1987), pp. 97-105	
252	125	SHIMANUKI, Y., et al., "Effects of Thermal History on Microdefect Formation in Czochralski Silicon Crystals," Japanese Journal of Applied Physics, Vol. 24, No. 12, (1985), pp. 1594-1599	
222	126	SINNO, T., et al., "On the Dynamics of the Oxidation-Induced Stacking-Fault Ring in as-grown Czochralski silicon crystals," Applied Physics Letters, Vol. 70, No. 17, (1997) pp. 2250-2252	
223	127	SINNO, T., et al., "Point Defect Dynamics and the Oxidation-Induced Stacking-Fault Ring in Czochralski-Grown Silicon Crystals," J. Electrochem. Soc., Vol. 145, No. 1, (1998) pp. 302-318	

Examiner Signature	Style She.	Date Considered	3/1/2004	
			··· ············	

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

^{&#}x27;Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

PTO/SB/08A				Complete if Known	
		2 2 2007	5	Application Number	10,054,629
INFORMATION DISCEOSURE STATEMENT BYMPPLICANT (use as many sheets as necessary)				Filing Date	January 22, 2002
				Confirmation Number	5778
				First Named Inventor	Chang Bum Kim
				Group Art Unit	1765 1775
				Examiner Name	Unknown
Sheet	10	of	11	Attorney Docket No.	MEMC 01-0151(2960.1)

	T	
227	128	TAN, T. Y., "Point Defects, Diffusion Processes, and Swirl Defect Formation in Silicon," Appl. Phys. A., Vol. 37, (1985) pp. 1-17
SIS	129	VANHELLEMONT, J., et al., "Defects in As-Grown Silicon and Their Evolution During Heat Treatments," Materials Science Forum, Vols. 258-263, (1997) pp. 341-346
212	130	VIRZI, "Computer Modelling of Heat Transfer in Czochralski Silicon Crystal Growth," Journal of Crystal Growth, 1991, Vol. 112, pp. 699-722.
ر 3 ک	131	VON AMMON, W., et al. "The Dependence of bulk defects on the axial temperature gradient of silicon crystals during Czochralski growth," Journal of Crystal Growth, Vol. 151 (1995) pp. 273-277
222	132	VON AMMON, W., et al. "Bulk properties of very large diameter silicon single crystals," Journal of Crystal Growth, Vol. 198/199, (1999), pp. 390-398
SIS	133	VORONKOV,V., "The Mechanism of Swirl Defects Formation in Silicon", Journal of Crystal Growth, Vol. 59 (1982) pp. 625-643.
575	134	VORONKOV, V., et al., "Behaviour and Effects of Intrinsic Point Defects in the Growth of Large Silicon Crystals", Electrochemical Society proceedings, Volume 97-22, (8/1997), pp. 3-17
STS	135	VORONKOV, V.V., et al., "Vacancy-type microdefect formation in Czochralski silicon", Journal of Crystal Growth 194 (1998) 76-88
227	136	VORONKOV, V., et al., "Vacancy and Self-Interstitial Concentration Incorporated into Growing Silicon Crystals," Journal of Applied Physics, Vol., 86(11), 1999, 5975-5982
227	137	VORONKOV, V., et al., "Grown-in microdefects, residual vacancies and oxygen precipitation banks in Czochralski silicon" Journal of Crystal Growth, 304 (1999) pp. 462-474
515	138	WIJARANAKULA, W., "Numerical Modeling of the Point Defect Aggregation during the Czochralski Silicon Crystal Growth", Journal of Electrochemical Society, Vol. 139, No. 2 (Feb. 1992), pp.604-616
27.2	139	WIJARANAKULA, W., "Effect of High-Temperature Annealing on the Dissolution of the <i>D</i> -Defects in <i>N</i> -Type Czochralski Silicon," Appl. Phys. Lett., Vol. 64(8), (1994), 1030-1032

Examiner	St.	Date	3/2/2011
Signature	the	Considered	3/1/2004

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

'Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3) ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

PTO/SB	TO/SB/08A			Complete if Known	
	MAY B	2 2 20	000 <u>5</u>	Application Number	10,054,629
INFORMATION DISCLASURE STATEMENT EXAMPLICANT (use as many sheets as necessary)				Filing Date	January 22, 2002
				Confirmation Number	5778
				First Named Inventor	Chang Bum Kim
				Group Art Unit	1.765 - 17 75
				Examiner Name	Unknown
Sheet	11	of	11	Attorney Docket No.	MEMC 01-0151(2960.1)

227	140	WINKLER, R., et al. "Improvement of the Gate Oxide Integrity by Modifying Crystal Pulling and Its Impact on Device Failures" Journal of the Electrochemical Society, Vol. 141, No. 5 (5/1994) pp. 1398-1401.
727	141	YAMAGISHI, et al., "Recognition of D Defects in Silicon Signle Crystals by Preferential Etching and Effect on Gate Oxide Integrity", Semicond. Sci Technol. 7, 1992, A135-A140.
533	142	YAMAUCHI, T., et al., "Application of Copper-Decoration Method to Characterize As-Grown Czochralski-Silicon," Jpn. J. Appl. Phys., Vol. 31, (1992), pp. L439-L442
222	143	ZIMMERMAN, H., et al. "Gold and Platinum Diffusion: the Key to the Understanding of Intrinsic Point Defect Behavior in Silicon", Applied Physics A Solids and Surfaces, Vol. A55, No. 1 (1992) pp. 121-134
553	144	ZIMMERMAN, H., et al. "Vacancy concentration wafer mapping in silicon" Journal of Crystal Growth, Vol. 129, (1993) pp. 582-592.

Examiner Signature Date Considered 3/1/200	4
--	---

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.